PATENT CLAIMS

1. A signal transformer having a primary limb (1) and a first secondary limb (4), a primary winding (2) at least partly enclosing the primary limb (1) and a secondary winding (6) at least partly enclosing the first secondary limb (4) and the primary limb (1) being connected to the first secondary limb (4), characterized
in that 2n+1 additional secondary limbs (5) are provided, where n = 0, 1, 2, 3, ..., and the additional secondary limbs (5) are connected to the primary limb (1) and the first secondary limb (4),
in that at least one secondary winding (6) is in each case provided for the additional secondary limbs (5) and for the first secondary limb (4), the secondary winding (6) at least partly enclosing the respective secondary limb (4, 5), and
in that a respective control winding (3) at least partly encloses a respective secondary limb (4, 5).

2. The signal transformer as claimed in claim 1, characterized in that there is the same number of secondary limbs (4, 5) on both sides of the primary limb (1).

3. The signal transformer as claimed in claim 2, characterized in that the distance between respectively adjacent secondary limbs (4, 5) and the distance between the primary limb (1) and a respective secondary limb (4, 5) adjacent to the primary limb (1) are the same.

4. The signal transformer as claimed in one of the preceding claims, characterized in that the primary winding (2) is designed as a conductor track (8) of a primary winding printed circuit board (7).

5. The signal transformer as claimed in claim 4, characterized in that the conductor track (8) of the primary winding printed circuit board (7) is surrounded by an insulating layer.

6. The signal transformer as claimed in claim 4 or 5, characterized in that the primary winding printed circuit board (7) has an opening (9) for leading through the primary limb (1).

7. The signal transformer as claimed in claim 6, characterized in that the conductor track (8) of the primary winding printed circuit board (7) extends around the opening (9) in the board propagation direction of the primary winding printed circuit board (7).

8. The signal transformer as claimed in one of the preceding claims, characterized in that the or each secondary winding (6) of a secondary limb (4, 5) is in each case designed as a conductor track (8) of a respective secondary winding printed circuit board (10), and
in that the control winding (3) of a secondary limb (4, 5) is designed as a conductor track (8) of a control winding printed circuit board (11).

9. The signal transformer as claimed in claim 8, characterized in that the conductor track (8) of the secondary winding printed circuit board (10) and the conductor track (8) of the control winding printed circuit board (11) are surrounded by an insulating layer.

10. The signal transformer as claimed in claim 8 or 9, characterized in that the secondary winding printed circuit board (10) and the control winding printed

circuit board (11) have an opening (9) for leading through the respective secondary limb (4, 5).

11. The signal transformer as claimed in claim 10, characterized in that the conductor track (8) of the secondary winding printed circuit board (10) extends around the opening (9) in the board propagation direction of the secondary winding printed circuit board (10), and
in that the conductor track (8) of the control winding printed circuit board (11) extends around the opening (9) in the board propagation direction of the control winding printed circuit board (11).

12. The signal transformer as claimed in one of claims 1 to 7, characterized in that the or each secondary winding (6) of a secondary limb (4, 5) and the control winding (3) of the same secondary limb (4, 5) are in each case designed as conductor tracks (8) of a multilayer printed circuit board (12).

13. The signal transformer as claimed in claim 12, characterized in that the multilayer printed circuit board (12) has an opening (9) for leading through the secondary limb (4, 5).

14. The signal transformer as claimed in claim 13, characterized in that the conductor tracks (8) of the multilayer printed circuit board (12) extend around the opening (9) in the board propagation direction of the multilayer printed circuit board (12).

15. The signal transformer as claimed in one of claims 1 to 7, characterized in that the secondary windings (6) of the secondary limbs (4, 5) and the control windings (3) of the secondary limbs (4, 5) are in each case designed as conductor tracks (8) of a multilayer printed circuit board (12).

16. The signal transformer as claimed in one of claims 1 to 3, characterized in that the secondary windings (6) of the secondary limbs (4, 5) and the control windings (3) of the secondary limbs (4, 5) and the primary winding (2) of the primary winding limb (1) are in each case designed as conductor tracks (8) of a multilayer printed circuit board.

17. The signal transformer as claimed in claim 15 or 16, characterized in that the multilayer printed circuit board (12) has openings (9) for leading through the respective secondary limbs (4, 5) and an opening (9) for leading through the primary limb (1).

18. The signal transformer as claimed in claim 17, characterized in that each conductor track (8) of the multilayer printed circuit board (12) extends around the associated opening (9) in the board propagation direction of the multilayer printed circuit board (12).

19. The signal transformer as claimed in one of claims 12 to 18, characterized in that the conductor tracks (8) are insulated from one another by insulating layers of the multilayer printed circuit board (12).

20. A method for operating a signal transformer as claimed in one of claims 1 to 19, in which a main flux (Φ_H) is generated in the primary limb (1) by feeding a primary winding signal (S_P) into the primary winding (2), characterized in that a control signal (S_{St}) is fed into at least one control winding (6) in such a way that a control flux is generated in the associated secondary limb (4, 5), and in that a secondary winding signal (S_S) present at the associated secondary winding (4, 5) is influenced by means of the control flux.

21. The method as claimed in claim 20, characterized in that the secondary winding signal (S_S) is switched on or off by the control flux.

22. A driver circuit for at least one drivable power semiconductor switch, characterized in that the driver circuit has a signal transformer as claimed in one of claims 1 to 20.

23. The driver circuit as claimed in claim 22, characterized in that the signal transformer is connected in between a signal function generator and at least one drivable power semiconductor switch.